Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-101

H-1 Upgrades (4BW/4BN) (H-1 Upgrades)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
DEC 2013		**00-00-2013 to 00-00-2013**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
H-1 Upgrades (4BW/4BN) (H-1 Upgrades)	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Program Executive Officer,,Air Anti-Submarine Warfare, Assault and Special Mission,Programs, 48202 Bronson Road, 2nd Floor,,Patuxent River,,MD,20670**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES
Selected Acquisition Report-SAR

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**42**	

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

H-1 Upgrades (4BW/4BN) (H-1 Upgrades)

DoD Component

Navy

Responsible Office

Responsible Office

Col Steven Girard
Program Executive Officer
Air Anti-Submarine Warfare, Assault and Special Mission
Programs, 48202 Bronson Road, 2nd Floor
Patuxent River, MD 20670-1547
steven.girard@navy.mil

Phone 301-757-5534
Fax 301-342-3788
DSN Phone 757-5534
DSN Fax 342-3788

Date Assigned January 31, 2013

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 22, 2008

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 11, 2011

Mission and Description

The mission of the AH-1Z attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions for the United States Marine Corps. The mission of the UH-1Y utility helicopter is to provide command, control and assault support under day/night and adverse weather conditions. Both the AH-1Z and UH-1Y aircraft incorporate state-of-the-art designs, which serve to improve capability, lethality, and survivability. Major modifications include a new four-bladed rotor system with semi-automatic blade fold of the new composite rotor blades, new performance matched transmissions, a new four-bladed tail rotor and drive system, upgraded landing gear, and pylon structural modifications. The H-1 Upgrades aircraft have increased maneuverability, speed, and payload capability. Both aircraft have fully integrated common cockpits/avionics that reduce operator workload and improve situational awareness, thus increasing safety.

Executive Summary

Both the UH-1Y and AH-1Z continue to meet all Key Performance Parameters. The UH-1Y is actively engaged in Operation Enduring Freedom deployments. Aircraft utilization rates continue to be two to three times the planned rate, and the UH-1Y has exceeded 22,600 combat flight hours. All West coast Marine Expeditionary Units (MEU) deploy with UH-1Y and AH-1Z aircraft. East coast MEUs deploy with UH-1Y and AH-1W aircraft.

H-1 helicopter production deliveries by Bell Helicopter out of its Amarillo, Texas, final assembly and flight operations facility are currently on or ahead of the contract delivery schedule. To date, 184 helicopters have been procured (120 UH-1Ys, 37 AH-1Z Remanufactures, and 27 AH-1Z Build News) with 127 aircraft delivered through March 10, 2014 (90 UH-1Ys and 37 AH-1Z Remanufactures). The final AH-1Z Remanufactured aircraft delivered in January 2014. All future AH-1Z deliveries will be Build New aircraft beginning in April 2014.

APB cost performance remains within established thresholds. Budget controls for the FY 2015 PB have been modified to account for airframe cost increases and changes in the United States Marine Corps priorities, adding an additional production year to the program, FY 2020. Reductions in the FY 2014 appropriated budget resulted in the decrease of four baseline aircraft. Additionally, FY 2013 quantities reflect two replacement AH-1Z aircraft from the sale of three AH-1W aircraft to Turkey. Funds from the sale were reprogrammed into a reimbursable account and are not reflected in program funding. The FY 2013 airframe cost reflects a budget for 28 aircraft. Replacement aircraft do not increase program of record quantity.

Aircraft availability rates are meeting goals on deployed aircraft but largely at the expense of Continental United Stated based aircraft as supply and repair/overhaul maturation is being achieved. Bell is increasing component production to fill Fleet shortfalls. Component reliability and maintainability data is being reviewed to identify problematic failures, and the team is working to correct those failures based on extensive root cause analysis. Standup of organic depot component repair capability is underway and currently supports the planned September 2015 Navy Support Date milestone. This will result in greater government control of component repair and reduced costs. The combination of these actions is critical to improving Fleet readiness and sustaining H-1 aircraft in the out years.

The program is aggressively pursuing FMS opportunities and has received interest from multiple countries with Pakistan formally requesting a Letter of Offer and Acceptance for 12 AH-1Z aircraft.

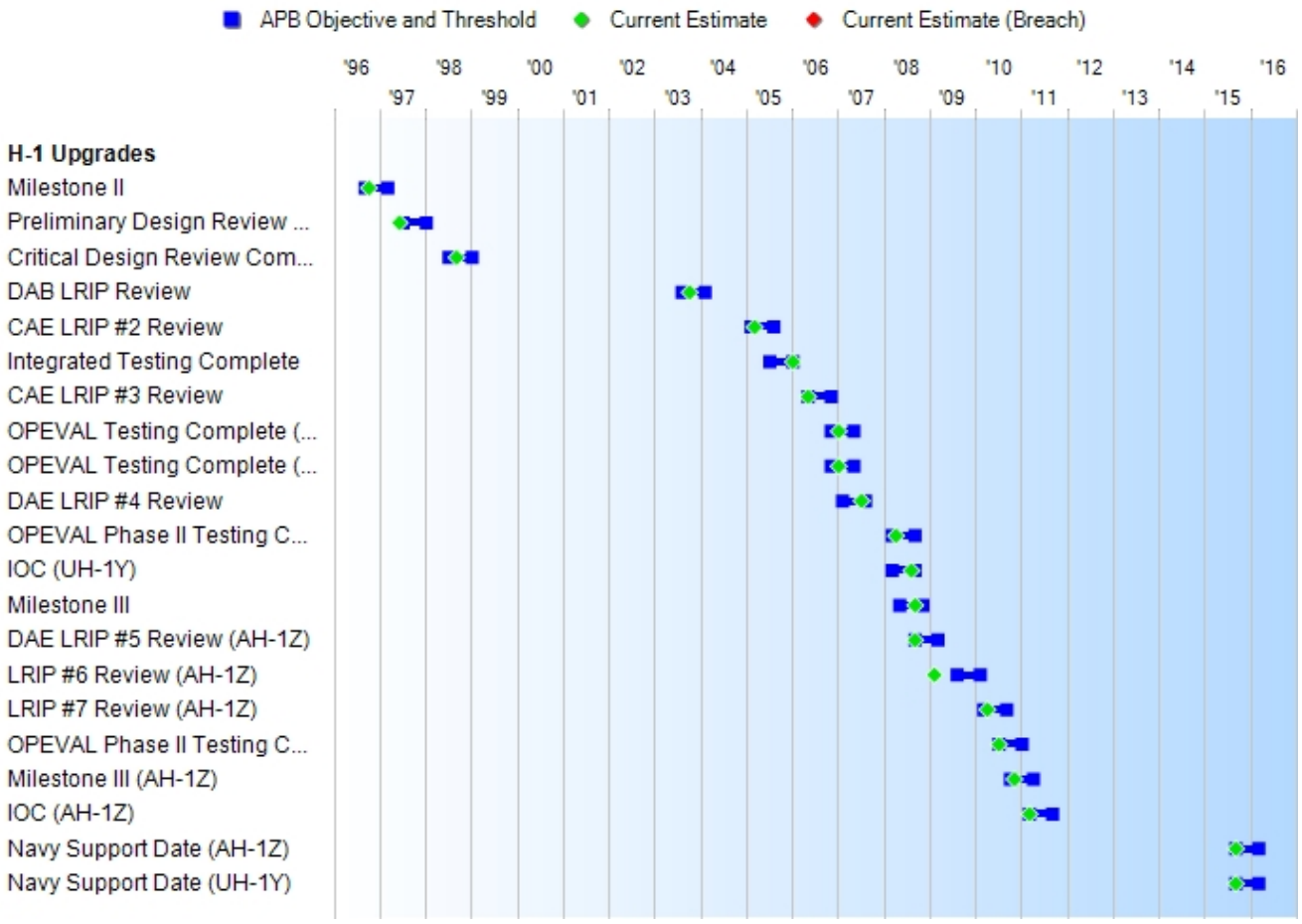
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule


APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
'15
'16
H-1 Upgrades
Milestone II
Preliminary Design Review ...
Critical Design Review Com...
DAB LRIP Review
CAE LRIP #2 Review
Integrated Testing Complete
CAE LRIP #3 Review
OPEVAL Testing Complete (...
OPEVAL Testing Complete (...
DAE LRIP #4 Review
OPEVAL Phase II Testing C...
IOC (UH-1Y)
Milestone III
DAE LRIP #5 Review (AH-1Z)
LRIP #6 Review (AH-1Z)
LRIP #7 Review (AH-1Z)
OPEVAL Phase II Testing C...
Milestone III (AH-1Z)
IOC (AH-1Z)
Navy Support Date (AH-1Z)
Navy Support Date (UH-1Y)

Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone II	SEP 1996	SEP 1996	MAR 1997	OCT 1996
Preliminary Design Review Complete	JUL 1997	JUL 1997	JAN 1998	JUN 1997
Critical Design Review Complete	JUL 1998	JUL 1998	JAN 1999	SEP 1998
DAB LRIP Review	AUG 2003	AUG 2003	FEB 2004	OCT 2003
CAE LRIP #2 Review	FEB 2005	FEB 2005	AUG 2005	MAR 2005
Integrated Testing Complete	JUL 2005	JUL 2005	JAN 2006	JAN 2006
CAE LRIP #3 Review	MAY 2006	MAY 2006	NOV 2006	MAY 2006
OPEVAL Testing Complete (AH-1Z)	NOV 2006	NOV 2006	MAY 2007	JAN 2007
OPEVAL Testing Complete (UH-1Y)	NOV 2006	NOV 2006	MAY 2007	JAN 2007
DAE LRIP #4 Review	FEB 2007	FEB 2007	AUG 2007	JUL 2007
OPEVAL Phase II Testing Complete (UH-1Y)	MAR 2008	MAR 2008	SEP 2008	APR 2008
IOC (UH-1Y)	MAR 2008	MAR 2008	SEP 2008	AUG 2008
Milestone III	MAY 2008	MAY 2008	NOV 2008	SEP 2008
DAE LRIP #5 Review (AH-1Z)	SEP 2008	SEP 2008	MAR 2009	SEP 2008
LRIP #6 Review (AH-1Z)	AUG 2009	AUG 2009	FEB 2010	FEB 2009
LRIP #7 Review (AH-1Z)	MAR 2010	MAR 2010	SEP 2010	APR 2010
OPEVAL Phase II Testing Complete (AH-1Z)	JUL 2010	JUL 2010	JAN 2011	JUL 2010
Milestone III (AH-1Z)	OCT 2010	OCT 2010	APR 2011	NOV 2010
IOC (AH-1Z)	MAR 2011	MAR 2011	SEP 2011	MAR 2011
Navy Support Date (AH-1Z)	MAR 2012	SEP 2015	MAR 2016	SEP 2015
Navy Support Date (UH-1Y)	MAR 2012	SEP 2015	MAR 2016	SEP 2015

Change Explanations

None

Acronyms and Abbreviations

CAE - Component Acquisition Executive
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
OPEVAL - Operational Evaluation

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	
4BW (AH-1W/AH-1Z)						
MFHBA (hrs)	35.0	35.0	24.0	56.6	56.6	(Ch-1)
MMH/FH (hrs)	3.6	3.6	4.3	2.7	2.7	(Ch-1)
Cruise Speed (kts)	165	165	135	139	139	(Ch-2)
Payload (Hot Day) (lbs)	3500 lbs	3500 lbs	2500 lbs 6 Wing Stations 4 Universal Under Wing Stations	3429	3429	(Ch-2)
Weapon Stations						
Universal Mounts	6	6	4	4	4	
Precision Guided Munitions	16	16	12	16	16	
Maneuverability/Agility (G's)	-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.5	-.5 to +2.5	-.5 to +2.5	
Mission Radius (NM)	200 NM	200 NM	110 NM	135 NM x 1	135 NM x 1	
Shipboard Compatibility	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	
Interoperability	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric	

	military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability,	military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidenti-ality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data	Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data	military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability,	military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability,

	and consistent data processing specified in the applicable joint and system integrated architecture views.	availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	and consistent data processing specified in the applicable joint and system integrated architecture views.	and consistent data processing specified in the applicable joint and system integrated architecture views.	
Force Protection (Seating)	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	
Survivability (Ballistic Tolerance/Hardening)	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hard-ened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hard-ened against 12.7 mm API.	
4BN (UH-1N/UH-1Y)						
MFHBA (hrs)	40.2	40.2	33.1	55.5	55.5	(Ch-1)
MMH/FH (hrs)	2.9	2.9	3.9	1.9	1.9	(Ch-1)
Cruise Speed (kts)	165	165	140	155	155	(Ch-2)
Payload (Hot Day) (lbs)	4500	4500	2800	2982	2982	(Ch-2)
Weapon Stations	2 Univ. Mounts	2 Univ. Mounts	2 Hard Mounts	2 Hard Mounts	2 Hard Mounts	
Maneuverability/Agility (G's)	-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.3	-0.5 to +2.3	-0.5 to +2.3	
Mission Radius (NM)	200 NM	200 NM	110 NM	130 NM	130 NM	(Ch-2)
Shipboard Compatibility	Fully compatible to include	Fully compatible to include	Fully compatible to include	Fully compatible to include	Fully compatible to include	

	blade fold.	blade fold.	blade fold.	blade fold.	blade fold.
Interoperability	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidenti-	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticatio n, confidentiality	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticatio n,	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentica-tion, confidentiality	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentica-tion, confidentiality

	ality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	confidentiality, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
Force Protection (Seating)	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustain-ing 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.

Survivability (Ballistic Tolerance/Hardening)	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 12.7 mm API.

Requirements Source

UH-1Y Capability Production Document (CPD) and AH-1Z CPD dated June 11, 2007 as modified by Joint Requirements Oversight Council Memorandum 195-08 dated October 14, 2008

Change Explanations

(Ch-1) The current estimate values for R&M have changed as follows based on the Naval Air Systems Command R&M Review Board #75 in September 2013: 4BW (AH-1W/AH-1Z) MFHBA from 51.6 to 56.6 and MMH/FH from 2.6 to 2.7; 4BN (UH-1N/UH-1Y) MFHBA from 58.9 to 55.5 and MMH/FH from 1.7 to 1.9.

(Ch-2) The following current estimate values have changed based on the H-1 Upgrades Air Vehicle Performance status report for January 2014: 4BW (AH-1W/AH-1Z) Cruise Speed from 137 to 139 and Payload from 3179 to 3429; 4BN (UH-1N/UH-1Y) Cruise Speed from 152 to 155, Payload from 3079 to 2982, and Mission Radius from 129 to 130.

Acronyms and Abbreviations

API - Armor Piercing Incendiary
ATO - Authority to Operate
DAA - Designated Approving Authority
DISR - DoD Information Technology Standards Registry
G's - Gravitational forces
GIG - Global Information Grid
HEI - High Explosive Incendiary
hrs - Hours
IATO - Interim Authority to Operate
IT - Information Technology
KIP - Key Interface Protocol
kts - Knots
lbs - Pounds
MFHBA - Mean Flight Hours Between Abort
mm - Millimeter
MMH/FH - Maintenance Man Hours per Flight Hours
NCOW - Net-Centric Operation and Warfare
NM - Nautical Miles
R&M - Reliability and Maintainability
RM - Reference Model
TV-1 - Technical Standards Profile
Univ. - Universal

Track to Budget

RDT&E

Appn		BA	PE
Navy	1319	05	0604245N

Project	Name
2279	H-1 Upgrades

Procurement

Appn		BA	PE
Navy	1506	01	0206131M

Line Item	Name
0178	4BW/4BN UH-1Y/AH-1Z
0605	4BW/4BN UH-1Y/AH-1Z Initial Spares

Aircraft Procurement, Navy - BA 05 for Line Item 0532, PE 0206131M, is incorporated into the program as a subset of total O&S.

MILCON

Appn		BA	PE
Navy	1205	01	02166490M

Project	Name	
991	H-1 Y/Z Gearbox Repair & Test Facility	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2008 $M			BY2008 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	1799.2	1848.3	2033.1	1703.9	1644.1	1696.2	1537.1
Procurement	9404.2	10088.4	11097.2	10272.6	10542.7	11022.1	11470.1
Flyaway	--	--	--	8646.3	--	--	9723.0
Recurring	--	--	--	8066.8	--	--	9099.9
Non Recurring	--	--	--	579.5	--	--	623.1
Support	--	--	--	1626.3	--	--	1747.1
Other Support	--	--	--	1380.3	--	--	1499.0
Initial Spares	--	--	--	246.0	--	--	248.1
MILCON	0.0	16.3	17.9	15.9	0.0	17.6	17.6
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	11203.4	11953.0	N/A	11992.4	12186.8	12735.9	13024.8

Confidence Level for Current APB Cost 50% -

The estimate recommendation aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity and represents a 50% confidence level.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	4	4	4
Procurement	349	349	349
Total	353	353	353

The four RDT&E aircraft include two UH-1Ys and two AH-1Zs. The 349 Procurement aircraft include 37 AH-1W helicopters remanufactured into AH-1Zs, 152 AH-1Z Build New (ZBN) models, 10 UH-1N helicopters remanufactured into UH-1Ys, and 150 new UH-1Y models.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	1537.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1537.1
Procurement	5806.7	665.9	859.7	916.3	925.8	912.5	939.2	444.0	11470.1
MILCON	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	7361.4	665.9	859.7	916.3	925.8	912.5	939.2	444.0	13024.8
PB 2014 Total	7376.6	822.2	818.3	847.8	926.1	962.6	970.8	0.0	12724.4
Delta	-15.2	-156.3	41.4	68.5	-0.3	-50.1	-31.6	444.0	300.4

FY 2015 PB prior quantity includes two replacement AH-1Z aircraft from the sale of three AH-1W aircraft to Turkey.

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	186	21	26	28	26	26	27	9	349
PB 2015 Total	4	186	21	26	28	26	26	27	9	353
PB 2014 Total	4	184	25	26	27	28	30	29	0	353
Delta	0	2	-4	0	1	-2	-4	-2	9	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1996	--	--	--	--	--	--	10.9
1997	--	--	--	--	--	--	67.9
1998	--	--	--	--	--	--	81.3
1999	--	--	--	--	--	--	116.7
2000	--	--	--	--	--	--	178.5
2001	--	--	--	--	--	--	138.2
2002	--	--	--	--	--	--	167.4
2003	--	--	--	--	--	--	232.9
2004	--	--	--	--	--	--	99.1
2005	--	--	--	--	--	--	168.2
2006	--	--	--	--	--	--	58.6
2007	--	--	--	--	--	--	26.4
2008	--	--	--	--	--	--	12.6
2009	--	--	--	--	--	--	4.4
2010	--	--	--	--	--	--	28.1
2011	--	--	--	--	--	--	57.6
2012	--	--	--	--	--	--	60.6
2013	--	--	--	--	--	--	27.7
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**1537.1**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	82.0
1998	--	--	--	--	--	--	97.4
1999	--	--	--	--	--	--	138.1
2000	--	--	--	--	--	--	208.3
2001	--	--	--	--	--	--	159.1
2002	--	--	--	--	--	--	190.7
2003	--	--	--	--	--	--	261.5
2004	--	--	--	--	--	--	108.3
2005	--	--	--	--	--	--	179.0
2006	--	--	--	--	--	--	60.5
2007	--	--	--	--	--	--	26.6
2008	--	--	--	--	--	--	12.5
2009	--	--	--	--	--	--	4.3
2010	--	--	--	--	--	--	27.0
2011	--	--	--	--	--	--	54.1
2012	--	--	--	--	--	--	56.0
2013	--	--	--	--	--	--	25.2
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**1703.9**

Annual Funding TY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2001	--	--	--	--	--	6.0	6.0
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	9	197.8	--	23.8	221.6	105.9	327.5
2005	7	136.9	--	18.7	155.6	78.3	233.9
2006	7	150.9	--	42.2	193.1	162.0	355.1
2007	11	228.8	--	136.5	365.3	170.1	535.4
2008	15	315.5	--	25.2	340.7	154.3	495.0
2009	24	514.0	--	42.6	556.6	80.5	637.1
2010	27	655.7	--	34.8	690.5	70.7	761.2
2011	31	688.5	--	77.6	766.1	127.0	893.1
2012	25	567.6	--	46.3	613.9	120.0	733.9
2013	30	740.0	--	4.3	744.3	84.2	828.5
2014	21	564.7	--	9.5	574.2	91.7	665.9
2015	26	736.7	--	11.4	748.1	111.6	859.7
2016	28	791.7	--	13.2	804.9	111.4	916.3
2017	26	822.3	--	27.8	850.1	75.7	925.8
2018	26	843.5	--	17.3	860.8	51.7	912.5
2019	27	865.1	--	21.2	886.3	52.9	939.2
2020	9	280.2	--	70.7	350.9	93.1	444.0
Subtotal	**349**	**9099.9**	**--**	**623.1**	**9723.0**	**1747.1**	**11470.1**

Annual Funding BY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
2001	--	--	--	--	--	6.8	6.8
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	9	212.6	--	25.6	238.2	113.8	352.0
2005	7	143.1	--	19.6	162.7	81.8	244.5
2006	7	153.5	--	42.9	196.4	164.8	361.2
2007	11	227.5	--	135.7	363.2	169.1	532.3
2008	15	309.0	--	24.7	333.7	151.1	484.8
2009	24	496.5	--	41.1	537.6	77.8	615.4
2010	27	620.2	--	32.9	653.1	66.9	720.0
2011	31	637.7	--	71.9	709.6	117.6	827.2
2012	25	517.6	--	42.2	559.8	109.4	669.2
2013	30	663.6	--	3.9	667.5	75.5	743.0
2014	21	497.4	--	8.4	505.8	80.8	586.6
2015	26	636.7	--	9.9	646.6	96.4	743.0
2016	28	670.9	--	11.2	682.1	94.4	776.5
2017	26	683.2	--	23.1	706.3	62.9	769.2
2018	26	687.1	--	14.1	701.2	42.1	743.3
2019	27	690.8	--	16.9	707.7	42.3	750.0
2020	9	219.4	--	55.4	274.8	72.8	347.6
Subtotal	**349**	**8066.8**	**--**	**579.5**	**8646.3**	**1626.3**	**10272.6**

Annual Funding TY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program TY $M
2012	17.6
Subtotal	**17.6**

Annual Funding BY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program BY 2008 $M
2012	15.9
Subtotal	**15.9**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	10/22/2003	6/7/2010
Approved Quantity	28	55
Reference	LRIP ADM	LRIP VII ADM
Start Year	2004	2004
End Year	2005	2010

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the need to permit an orderly increase in the production rate and efficiency until successful completion of operational testing.

Foreign Military Sales

None

Nuclear Costs

None

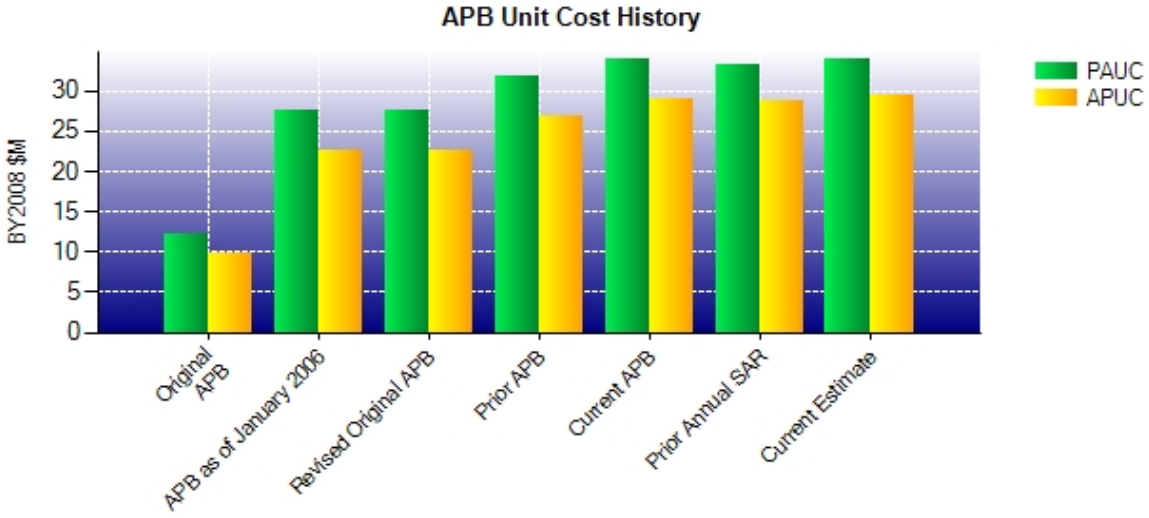
Unit Cost

Unit Cost Report

Unit Cost	BY2008 $M Current UCR Baseline (FEB 2011 APB)	BY2008 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	11953.0	11992.4	
Quantity	353	353	
Unit Cost	33.861	33.973	+0.33
Average Procurement Unit Cost (APUC)			
Cost	10088.4	10272.6	
Quantity	349	349	
Unit Cost	28.907	29.434	+1.82

Unit Cost	BY2008 $M Revised Original UCR Baseline (APR 2005 APB)	BY2008 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	7852.2	11992.4	
Quantity	284	353	
Unit Cost	27.649	33.973	+22.87
Average Procurement Unit Cost (APUC)			
Cost	6352.9	10272.6	
Quantity	280	349	
Unit Cost	22.689	29.434	+29.73

Unit Cost History



		BY2008 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	OCT 1996	12.089	9.903	12.491	10.554
APB as of January 2006	APR 2005	27.649	22.689	28.172	23.843
Revised Original APB	APR 2005	27.649	22.689	28.172	23.843
Prior APB	DEC 2008	31.738	26.946	34.524	30.208
Current APB	FEB 2011	33.861	28.907	36.079	31.582
Prior Annual SAR	DEC 2012	33.152	28.611	36.046	32.003
Current Estimate	DEC 2013	33.973	29.434	36.897	32.866

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
12.491	-0.078	-1.056	1.772	2.351	15.397	0.000	3.647	22.033	34.524

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
34.524	-0.362	0.000	-0.039	0.274	2.349	0.000	0.151	2.373	36.897

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.554	-0.003	-0.686	1.722	1.632	13.299	0.000	3.690	19.654	30.208

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
30.208	-0.374	0.000	-0.039	0.000	2.918	0.000	0.152	2.657	32.866

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	SEP 1996	SEP 1996	OCT 1996
Milestone III	N/A	FEB 2004	MAY 2008	SEP 2008
IOC	N/A	JUN 2005	MAR 2008	AUG 2008
Total Cost (TY $M)	N/A	3547.5	12186.8	13024.8
Total Quantity	N/A	284	353	353
Prog. Acq. Unit Cost (PAUC)	N/A	12.491	34.524	36.897

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1644.1	10542.7	--	12186.8
Previous Changes				
Economic	+3.2	-57.2	+0.5	-53.5
Quantity	--	--	--	--
Schedule	--	-155.4	--	-155.4
Engineering	+96.7	--	--	+96.7
Estimating	-206.2	+735.8	+17.1	+546.7
Other	--	--	--	--
Support	--	+103.1	--	+103.1
Subtotal	-106.3	+626.3	+17.6	+537.6
Current Changes				
Economic	-0.7	-73.5	-0.1	-74.3
Quantity	--	--	--	--
Schedule	--	+141.8	--	+141.8
Engineering	--	--	--	--
Estimating	--	+282.7	+0.1	+282.8
Other	--	--	--	--
Support	--	-49.9	--	-49.9
Subtotal	-0.7	+301.1	--	+300.4
Total Changes	-107.0	+927.4	+17.6	+838.0
CE - Cost Variance	1537.1	11470.1	17.6	13024.8
CE - Cost & Funding	1537.1	11470.1	17.6	13024.8

Summary Base Year 2008 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1799.2	9404.2	--	11203.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-138.9	--	-138.9
Engineering	+83.6	--	--	+83.6
Estimating	-181.0	+628.7	+15.8	+463.5
Other	--	--	--	--
Support	--	+91.1	--	+91.1
Subtotal	-97.4	+580.9	+15.8	+499.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+102.3	--	+102.3
Engineering	--	--	--	--
Estimating	+2.1	+232.4	+0.1	+234.6
Other	--	--	--	--
Support	--	-47.2	--	-47.2
Subtotal	+2.1	+287.5	+0.1	+289.7
Total Changes	-95.3	+868.4	+15.9	+789.0
CE - Cost Variance	1703.9	10272.6	15.9	11992.4
CE - Cost & Funding	1703.9	10272.6	15.9	11992.4

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-0.7
Adjustment for current and prior escalation. (Estimating)	+0.7	+0.7
Revised estimate to reflect actuals. (Estimating)	+1.4	-0.7
RDT&E Subtotal	+2.1	-0.7

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-73.5
Adjustment for current and prior escalation. (Estimating)	+23.2	+26.0
Schedule variance resulting from procurement profile adjustments in FY 2013 through FY 2020. (Schedule)	0.0	+11.3
Additional schedule variance resulting from procurement profile adjustments in FY 2013 through FY 2020. (Schedule)	+102.3	+130.5
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	+35.7	+42.9
Increase in contractor overhead rates and a Bell Business System Modernization accounting structure change. (Estimating)	+237.5	+285.3
Removal of ramp tooling for remanufactured AH-1Zs. (Estimating)	-10.8	-12.3
Adjustment to cost estimate due to AH-1W sale to Turkey. (Estimating)	-40.6	-45.5
Decrease in estimate due to FY 2015 PB constraints. (Estimating)	-12.6	-13.7
Adjustment for current and prior escalation. (Support)	+4.4	+4.6
Decrease in Other Support due to FY 2015 PB constraints. (Support)	-49.3	-52.0
Decrease in Initial Spares due to FY 2015 PB constraints. (Support)	-2.3	-2.5
Procurement Subtotal	+287.5	+301.1

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
MILCON Subtotal	+0.1	0.0

Contracts

Appropriation: RDT&E	
Contract Name	**AH-1Z BUILD NEW (ZBN) UPGRADES**
Contractor	Bell Helicopter Textron
Contractor Location	600 Hurst Blvd Hurst, TX 76053
Contract Number, Type	N00019-06-G-0001/24, CPFF
Award Date	December 20, 2007
Definitization Date	November 04, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1.3	N/A	N/A	87.1	N/A	N/A	87.1	87.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications to include AH-1Z Build New (ZBN) Phase 1 and Phase 2 Non-Recurring Engineering, 401C Engine Qualification, and additional funding to cover cost overruns associated with underestimation of effort on drawing conversions and cabin builds.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (3/1/2014)	-20.3	-6.8
Previous Cumulative Variances	-11.4	-13.7
Net Change	-8.9	+6.9

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to additional resources and personnel required for cabin fabrication and delivery at the supplier, Kaman Aerospace. Additional engineering and quality support has also been required for the completion of First Article Inspections and various tooling costs have contributed to the unfavorable cost variance.

The favorable net change in the schedule variance is due to improvements made to previous manufacturing start up issues at the supplier, Kaman Aerospace, specifically part shortages and First Article Inspection requirements. In order to mitigate any further delays to the AH-1Z Build New (ZBN) aircraft delivery, Bell Helicopter is completing the assembly of ZBN cabins at Bell's production facility in Amarillo, Texas, rather than at Kaman's facility in Jacksonville, Florida, until manufacturing start up issues can be resolved.

Appropriation: Procurement

Contract Name	**Lot 8**
Contractor	Bell Helicopter Textron
Contractor Location	600 Hurst Blvd Hurst, TX 76053
Contract Number, Type	N00019-10-C-0015, FFP
Award Date	February 05, 2010
Definitization Date	July 25, 2011

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
50.3	N/A	33	600.3	N/A	33	600.3	600.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to final definitization of the Lot 8 production contract, to include procurement of 19 UH-1Y and 8 AH-1Z Remanufactured aircraft and 6 AH-1Z Build New aircraft, and additional miscellaneous modifications.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement

Contract Name	**Lot 9**
Contractor	Bell Helicopter Textron
Contractor Location	600 Hurst Blvd Hurst, TX 76053
Contract Number, Type	N00019-11-C-0023, FFP
Award Date	March 14, 2011
Definitization Date	October 16, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
48.4	N/A	26	474.5	N/A	25	474.5	474.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to final definitization that reduced total procurement quantities from 26 to 25, to include procurement of 15 UH-1Y, 3 AH-1Z Remanufactured aircraft, 7 AH-1Z Build New aircraft, and additional miscellaneous modifications.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement	
Contract Name	**Lot 10**
Contractor	Bell Helicopter Textron
Contractor Location	600 Hurst Blvd Hurst, TX 76053
Contract Number, Type	N00019-12-C-0009, FPIF
Award Date	February 13, 2012
Definitization Date	December 27, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.7	N/A	25	554.6	574.6	28	554.6	554.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to final definitization to include procurement of 15 UH-1Y and 13 AH-1Z Build New aircraft, and additional miscellaneous modifications. Increase from 25 to 28 due to the exercise of 3 option aircraft.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (3/1/2014)	-2.3	+4.0
Previous Cumulative Variances	0.0	0.0
Net Change	-2.3	+4.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the receipt of various material and parts at a lower cost than budgeted.

The favorable cumulative schedule variance is due to various material and parts received ahead of the performance measurement baseline schedule.

Appropriation: Procurement

Contract Name	**Lot 11**
Contractor	Bell Helicopter Textron
Contractor Location	600 Hurst Blvd Hurst, TX 76053
Contract Number, Type	N00019-13-C-0023, FFP
Award Date	April 01, 2013
Definitization Date	

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
13.0	N/A	25	64.2	N/A	25	64.2	64.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to receipt of additional funding in support of the Advanced Acquisition Contract for long lead items, as well as the award of the calendar year Acquisition Logistics Support.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Contract Comments

This is the first time this contract is being reported.

The current value reflects the Advanced Acquisition Contract for long lead parts associated with the Lot 11 procurement. Definitization and full funding is anticipated in April 2014.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	4	100.00%
Production	127	127	349	36.39%
Total Program Quantity Delivered	131	131	353	37.11%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	13024.8	Years Appropriated	19
Expended to Date	5837.9	Percent Years Appropriated	76.00%
Percent Expended	44.82%	Appropriated to Date	8027.3
Total Funding Years	25	Percent Appropriated	61.63%

The above data is current as of 3/10/2014.

Operating and Support Cost

H-1 Upgrades

Assumptions and Ground Rules

Cost Estimate Reference:
All costs were estimated in BY 2008 dollars. The O&S estimate source is the Milestone III AH-1Z Full Rate Production estimate of 2010 updated for rates and programmatic changes.

Source: Naval Air Systems Command 4.2 Cost Department, Operating and Sustainment Division
Date of Estimate: February 2014

Sustainment Strategy:
H-1 Procurement Profile: 189 AH-1Z, 160 UH-1Y.

The life cycle includes a phase-in period, 30-year operation with an annual usage of 222 flight hours per aircraft, and a phase-out period, accumulating 7,972 operating aircraft years.

Each aircraft has a designed fatigue life of 10,000 hours per aircraft.

Attrition rates are 1% for the AH-1Z and UH-1Y. Pipeline rates are 10% for the AH-1Z and UH-1Y.

O&S cost estimates are based on organic three levels of maintenance with chargeable manning (fleet squadron) estimated at 100%.

Antecedent Information:
The H-1 antecedent estimate is a composite of AH-1W and UH-1N series aircraft. Cost per aircraft is the combined three-year (2007-2009) average of Navy Visibility and Management of Operating and Support Costs data. The number of aircraft and years of service are set equal to the AH-1Z and UH-1Y. There is no data available to provide the actual period of performance and aircraft inventory for the AH-1W and UH-1N. Manpower for antecedent and upgrade aircraft are set equal as the table of organization is deemed to be equivalent.

Unitized O&S Costs BY2008 $K		
Cost Element	**H-1 Upgrades Average Annual Cost Per Aircraft**	**UH-1N/AH-1W (Antecedent) Average Annual Cost Per Aircraft**
Unit-Level Manpower	1543.000	1543.000
Unit Operations	243.000	221.000
Maintenance	1639.000	1627.000
Sustaining Support	118.000	122.000
Continuing System Improvements	174.000	332.000
Indirect Support	447.000	447.000
Other	0.000	0.000
Total	4164.000	4292.000

Unitized Cost Comments:

The Average Annual Cost Per Aircraft for H-1 Upgrades is calculated by dividing the total O&S cost by the total operational aircraft years for the program.

The Average Annual Cost Per Aircraft for the UH-1N/AH-1W Antecedent is calculated using the same operational aircraft years as for the H-1 Upgrades aircraft.

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		**Current Estimate**	
	H-1 Upgrades		**H-1 Upgrades**	**UH-1N/AH-1W (Antecedent)**
Base Year	33301.8	36632.0	33190.8	34215.8
Then Year	0.0	N/A	51341.1	N/A

Total O&S Costs Comments:

The H-1 Upgrades program operational aircraft quantities support the Marine Corps with squadrons composed of 15 AH-1Z and 12 UH-1Y aircraft.

H-1 Procurement Profile: 189 AH-1Z, 160 UH-1Y. H-1 Primary Authorized Aircraft Profile: 156 AH-1Z, 131 UH-1Y.

O&S Cost Variance		
Category	Base Year 2008 $M	Change Explanation
Prior SAR Total O&S Estimate - December 2012	+33,233.627	
Cost Estimating Methodology	+315.390	Refined 1.0 Manpower alignment to Aircraft Program Data File, Aviation Fleet Maintenance cost degradation ratio update.
Cost Data Update	-808.073	FY 2013 Aviation Depot Level Repairables pricing update.
Labor Rate	+166.117	Updated labor rates.
Energy Rate	+283.721	Fuel price update.
Technical Input	0.000	

Programmatic/Planning Factors	0.000	
Other	0.000	
Total Changes	-42.845	
Current Estimate	33,190.782	

Disposal Costs:

The Rough Order of Magnitude estimated cost of the demilitarization/disposal phase for the remaining aircraft is $86M in BY 2008 dollars. The estimate will be refined as the System Disposal Plan Annex to the Life Cycle Sustainment Plan is developed.